

Research Article

Open Access

Community Health Assessment findings on Diabetes among Adults in Nyeri County, Kenya, 2019

Gatwiri Murithi^{1,3}, Munene Johnkennedy², Muriu Nelson², Dr. George Otieno³, Alison Yoos^{1,4}, Grace Wanjau¹

¹Improving Public Health Management for Action, Kenya

²Department of Health Nyeri County

³Department of Public Health and Informatics Kenyatta University

⁴TEPHINET (Consultant)

Abstract

Background: The global prevalence of diabetes among adults was 8.5% in 2014. Kenya's prevalence is at 3.3%, according to WHO. Nyeri County has an estimated prevalence of 7.2% which is significantly higher than the national prevalence.

Methods: A cross-sectional study was conducted in Mukurweini Sub County, Nyeri. Systematic random sampling was used to recruit participants from a sampling frame of all adult community members. A sample of 190 households calculated at a confidence level of 95 and a 5% error margin. Every 7th household was picked and respondents were household heads. Data was collected using structured questionnaires, Key informant interviews and Focus group discussions. Knowledge levels, health seeking behavior, health care access, physical activity and nutrition were assessed. Data was analyzed and rated using the CDC CHANGE tool.

Findings: Low education levels with 65% at primary and below hence low levels of knowledge on diabetes, poor uptake of physical activity as 51% never engaged in any and inappropriate dietary choices and meal timing. Low screening levels for diabetes with only 36% having ever been screened. There were no clear policies on community engagement in physical activity. Easy access to health facilities, friendly health care workers and availability of health services and medication were identified as the assets.

Conclusion: Assessing the community's knowledge, attitudes, behavior and resources provides information on how to improve diabetes prevention and treatment. It helps to inform future interventions.

*Corresponding author

Gatwiri Murithi, Improving Public Health Management for Action, Kenya, Tel: +254 723282251; E-Mail: murithig189@gmail.com

Received: October 05, 2021; **Accepted:** October 11, 2021; **Published:** October 30, 2021

Keywords: Community Engagement, Diabetes, Nyeri, Kenya

Background

Diabetes is a metabolic disorder in which there are high levels of sugar in the blood over a prolonged period, and presents with symptoms like excessive thirst, need to urinate often, increased hunger, loss or gain in weight. If not treated diabetes can lead to bad outcomes like ketoacidosis, hyperglycemia, kidney diseases, damage to eyes and complications in cardiovascular functions.

Diabetes may be due to the body's inability to produce insulin and this type is genetic (Type I). Type II diabetes is due to the body cells resistance to insulin while diabetes due to pregnancy is called gestational diabetes.

Diabetes is a major cause of death and disability worldwide. The global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014 (WHO) [1].

Worldwide 415 million people live with diabetes (Pathologist Lancet Kenya.)

International Diabetes Foundation (IDF) Atlas 8th Edition estimates that 15.5 million adults aged 20-79 years were living with diabetes in the IDF Africa region in 2017, representing a regional prevalence of 3.3%. The highest prevalence of diabetes in the region is found in adults aged 55 to 64. The region has the highest proportion of undiagnosed diabetes, with over two-thirds (69.2%) of adults currently living with diabetes unaware of their condition. More than half (55.3%) of adults living with diabetes in the Africa region live in urban areas.

WHO estimates the prevalence of diabetes in Kenya to be 3.3% however this might be an under estimate as many cases are undiagnosed Kenya is among the developing countries battling with a double burden of both communicable and non-communicable diseases thus hindering its progress towards

achieving the Sustainable Development Goals (SDGs). While these countries continue to fight infectious diseases there is an evident rise in NCDs with a projected mortality rate of 46% by 2030 (WHO).

In Nyeri County, which is one of the 47 counties of Kenya, the prevalence of diabetes is estimated at 7.2% in 2017 (Nyeri County Health Reports) way higher than the national prevalence.

A survey conducted in Nyeri County in 2017 shows that Mukurweini has the highest prevalence of diabetes at 13.1% and Rugi ward in particular had a prevalence of 25.2%

The rise in NCDs is attributable to risky behavior like tobacco use, sedentary lifestyle excessive alcohol use and obesity. There is need for renewing efforts to bring down the burden of diabetes through creating awareness, screening and timely management of diabetes. In this light, the CHA sought to assess the levels of knowledge among the residents, interventions geared at prevention and overall reduction of the burden in the specific community.

Problem Statement

Diabetes poses a problem of enormous magnitude globally; it is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation (WHO). In 2016, an estimated 1.6 million deaths were directly caused by diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012.

In Nyeri County, diabetes is among the top 10 causes of morbidity and mortality according to health records. Complications arising from diabetes have led to reduced economic productivity and high financial implications as a lot of resources are spent on managing the condition. As such, efforts to control diabetes should be a priority with the aim of reducing morbidity and mortality. In Nyeri, there are no recent studies reporting contributing factors to the increasing burden of diabetes.

Community Health Assessment Justification

Diabetes poses a great challenge to patients and their families and more so impacts negatively on the economy owing to increased mortality and high cost associated with diabetes management, consequently low productivity.

Specifically, Nyeri County was picked as a pilot County for Universal Health Coverage due to its high burden of non-communicable diseases (one of them being diabetes).

The community assessment was aimed at identifying diabetes related problems, prioritizing them and coming up with possible interventions. All this with an ultimate goal of improving professionals understanding of the community in order to inform interventions as well as encourage community participation in the solutions to their problems.

Assessment Objectives.

Broad Objective

Carry out a needs assessment with the aim of planning a project whose beneficiaries are community members with diabetes or at risk of developing diabetes in order to improve the quality of life of the people.

Specific Objectives

1. Identify diabetes related problems.
2. Identify the resources available in the community in relation to diabetes.
3. Identify possible interventions and prioritize them.
4. Encourage community to participate in formulating solutions to their problems.

Literature Review

Increased awareness about diabetes in the population is a determining factor in the prevention of diabetes and its complications. Knowledge and attitudes are indicators that need to be assessed in order to identify gaps in management of diabetes. Until the early 1990s knowledge, attitudes and belief models were the focus of diabetes education [2]. At the population level we must increase awareness about risk factors for diabetes so that people can take preventive actions [3]. Notably evaluation of diabetic patients at the community level was associated with improvement of their health [4]. An assessment on level of diabetes knowledge in South Africa revealed that level of awareness was linked to availability of education and health services where those that lacked these were at higher risk of diabetes and its complications [5]. Patient who had been informed about their blood glucose after a test had more knowledge on diabetes [5]. There is need for increased education on diabetes and its management in primary health care.

Once diabetes has been detected in an individual, long term complications can be prevented by effective treatment of hypoglycemia. There are however many socioeconomic factors that influence access to care in different populations and different health systems. Inequalities in access to services have a negative impact on outcomes and interventions should be geared at identifying effective ways of improving access to health care for all persons with diabetes [6]. In resource limited set ups patients access care for diabetes if their families have money, social relations, knowledge and ability to communicate with health staff while those with low socio-economic standards are disadvantaged [7]. Quality of diabetic care is important because diabetes can be effectively treated and controlled and its complications are preventable while poorly controlled diabetes is costly and the prevalence is dramatically increasing globally.

Health seeking behaviors in patients with diabetes is sought from nurses and physicians and more in government institutions where they are not charged. Perceived failure in health care systems has led some patients to seek alternative treatments and consult traditional healers. Living conditions, health care organization and gender (females seek care more often) influence health care seeking behaviors [8]. Individual level factors have been most investigated determinants of diabetes however there are other social determinants including socio-economic, cultural, and psychosocial like depression that influence risk behaviors. In addition, health care settings and practices, physical and social environment, family and social networks all have an impact on diabetes thus interventions to counteract the health issue have to take a multidisciplinary perspective [9, 10].

Assessment Findings
Social Demographics

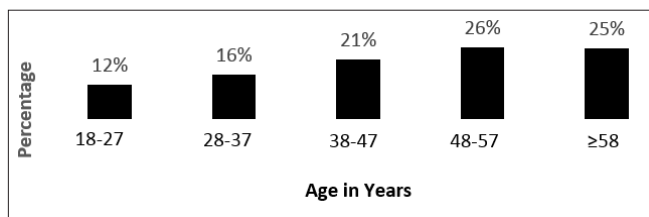


Figure 1: Age Distribution.

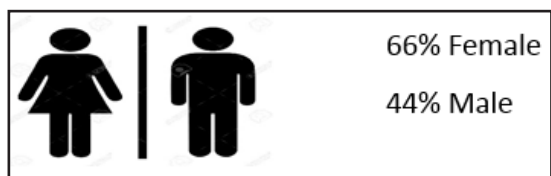


Figure 2: Sex

Table 1: Occupation of Respondents

44%	Homemakers
19%	Business
15%	Casual laborer
8%	Formal employment

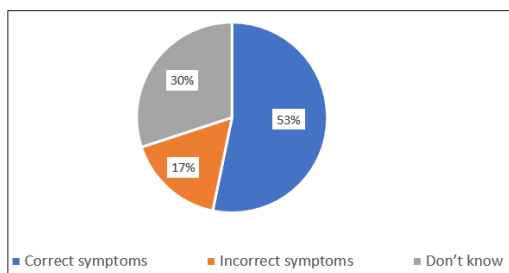
Table 2: Level of Education of the Respondents

65%	Primary and below
31%	Secondary
4%	Tertiary

Knowledge on Diabetes

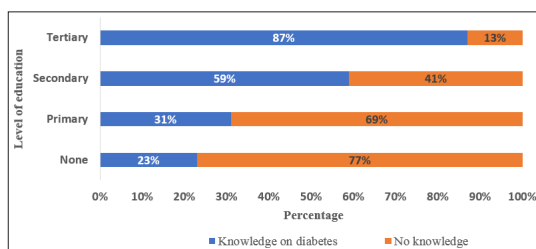
Graph 1: Illustrating number of respondents with correct knowledge of diabetes

47% of the respondents could not correctly identify symptoms of diabetes



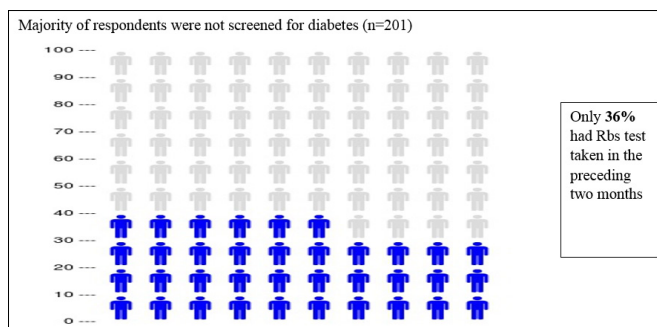
Graph 2: Relationship between level of education and knowledge on diabetes

More education = more knowledge on diabetes (n=203)

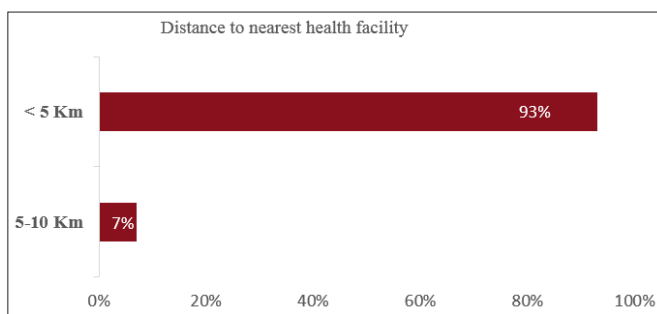


Health Care Access

Graph 3: Number of persons screened for diabetes at the time of survey



Graph 4: Distance to the nearest health facility
Greater part of community had ease of access to a health facility (n=203)



Health Seeking Behavior

Graph 5: Proportion of Health care workers that were friendly.
Most of respondents felt that HCWs were friendly (n=198)

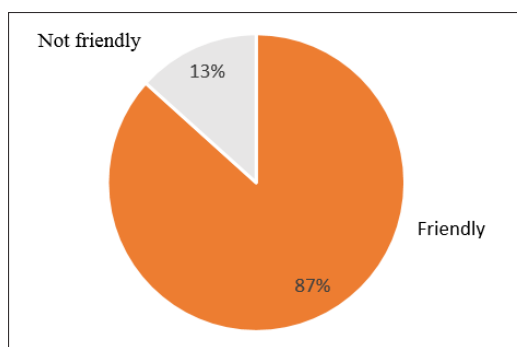


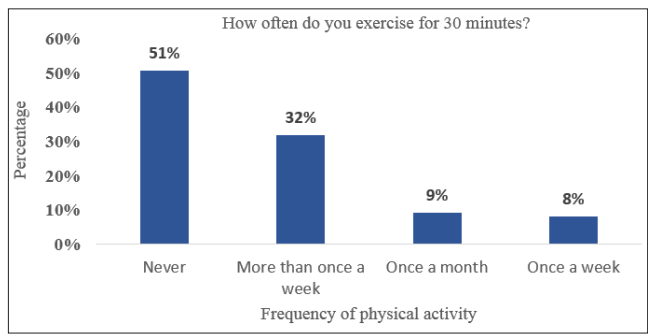
Photo 1: Focus group discussion with community members.
Information about diabetes



Physical Activity

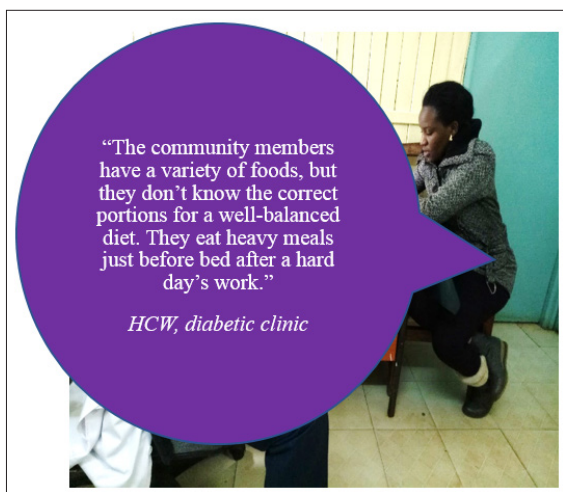
Graph 6: Showing frequency of engagement in physical activity

51% had never engaged in physical activity (n=203)



Nutrition

Photo 2: Key Informant interview with Health Care worker running the diabetic clinic



Community Health Assessment and Group Evaluation

Table 3: Rating of the components as per policy, environment and systems to identify assets and needs.

Community's Name:	Rugi ward, Mukurweini sub county, Nyeri		
Module Score Summaries			
System	Policy	Environment	Module
41%	46%	42%	Knowledge levels
51%	56%	52%	Physical exercise
25%	30%	25%	Nutrition
69%	82%	65%	Health - care access
36%	50%	46%	Health seeking behavior






Assets

- Easy access to health facilities.
- Friendly health care workers.
- Availability of health services and medication.

Needs

- Low levels of education influencing knowledge on diabetes.
- Low uptake of physical activity by the community.
- Poor dietary choices and inappropriate meal timing.
- Low screening for diabetes in the community.

Suggested strategies.

	Craft IEC materials on diabetes for those with less education.		Identify and use community champions to demonstrate good practices like kitchen gardening.
	Customize nutritional counselling messages around portions and meal timing.		Engage the community in formulating intervention strategies to enhance ownership.
	Intensify screening for diabetes in the community.		

Next steps

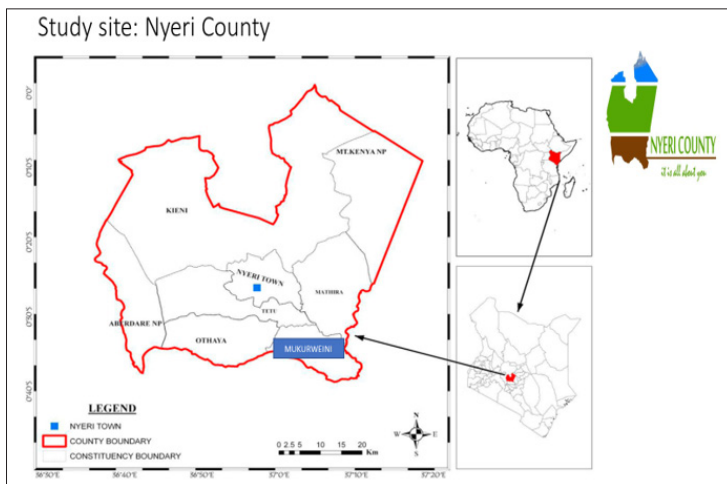
1. Selection of a change strategy with the community and development of a project.
2. Sharing findings and recommendations with County Health Department for action.

Conclusion

- Assessing the community’s knowledge, attitudes, behavior and resources provides information on how to improve diabetes prevention and treatment
- It helps to inform future interventions.

Appendices

Appendix 1; Study site



Appendix 2; Questionnaire

Household Survey.

Respondent: Household member

Introduction.

1. My name is Gatwiri Murithi. I am an Improving Health Management for Action fellow at Kenyatta University in collaboration with the Ministry of Health and Nyeri County Department of Health. We are conducting a community health assessment to identify health needs of this community and together come up with suggestions on how to address these needs.
2. This questionnaire is formulated for community engagement and the information from the interview will be confidential and your consent is requested.
3. It would be helpful if you give honest information to help us identify the needs and assets in the community and your co-operation is highly appreciated.
4. Do you consent for me to proceed with the interview? YES
NO

Demographic information

- 1. Age
 - 18-27
 - 28-37
 - 38-47
 - 48-57
 - ≥68
- 2. Sex
 - Male
 - Female
- 3. What is the level of your highest formal education?
 - None
 - Primary education (KCPE)
 - Secondary education (KCSE)
 - Tertiary education (specify.....)
- 4. What is your Occupation?
 - Formal employment
 - Business
 - Casual laborer
 - Home maker/ unemployed
 - Other specify.....

Knowledge base and health education

- 5. What are the symptoms of diabetes?
- 6. What actions can you take to make it less likely that you will develop diabetes in the future? (E.g. exercise, eating a healthy diet, not smoking etc.)
- 7. a) Has anyone in your family been diagnosed with diabetes? Yes
No

b) If Yes do you think this is important?
Why?

8. What do you know about the treatment of diabetes?

Health care access and quality

- 9. How far is the nearest health facility?
 - < 5 Km
 - 5-10Km
 - >10 Km
- 10. How friendly are the doctors and nurses in this health facility?
Very friendly somehow friendly Unfriendly Very unfriendly

11. a) Have you taken a blood sugar test in the last 2 months? Yes
No

b) If Yes who did it?.....

c) Why was it done, were you unwell or it was routine screening?.....

12. Has a doctor or health professional talked to you about diabetes in the last 2 months?
Yes
No

13. Has any health professional talked to you about physical activity in the last two months?
Yes
No

Risk Factors

14. Yesterday, how many times did you take soda?

15. How often do you take red meat (beef, goat, mutton)?
Everyday
Every other day
1-3 times per month
Never

16. How often do you do exercise for 30 minutes?
More than once a week
Once a week
Once a month
Never

17. a) Have you ever tried to lose weight?
Yes many times
Yes occasionally
No never

b) If yes why did you decide to this?.....

c) Was is successful or not?.....

Appendix 3

Key Informant Interview Guides

Key informant interview survey questions

1. My name is Gatwiri Murithi. I am an Improving Health Management for Action fellow at Kenyatta University in collaboration with the Ministry of Health and Nyeri County Department of Health. We are conducting a community health assessment to identify health needs of this community and together come up with suggestions on how to address these needs.
2. The interview is aimed at identifying the contributing factors to high prevalence of diabetes in the County, specifically Mukurweini sub county of Nyeri county.
3. All your responses will be kept confidential and will only be used to inform intervention strategies and monitoring.
4. You may decline to respond to any of the questions that you don't feel comfortable with and your participation is highly appreciated.

- i) Seeking health care
 - ii) Physical exercise
 - iii) Dietary habits.
10. What do you think has been the greatest obstacle to optimum health?
11. Is there anything else you would like to add?

Thank you for your participation.

Education (sub county Education officer)

Date of interview.....

Interview site/ setting.....

1. a) What kind of support for education is essential in the community in terms of health?
b) In particular in terms of diabetes?
2. What role does the education sector play in terms of enhancing
 - a) Physical activities?
 - b) Nutrition/ diet?
 - c) Health seeking habits?
3. a) Does the school curricular provide for health education to be offered?
If yes what areas/ issues are covered?
4. How does the school system support management of students living with diabetes?
5. What is the collaboration of the education sector with the health sector to address matters of health?
Probe; Explain some of the activities undertaken
6. a) What challenges does the education sector face in advocating for health behavior change?
b) How can these challenges be addressed?
7. What do you think has been the greatest obstacle to optimum health?
b) What is your suggestion on how this can be overcome?
8. Is there anything else you would like to add?

Thank you for your participation.

Agriculture (Sub County Agricultural officer)

1. Has the community identified any problems in dietary/feeding need?
2. What are the main concerns related to food in your community (tick all that apply)?
 - Not enough food
 - Loss of agricultural land
 - Loss of agricultural assets like seeds, storage space
 - No physical access to market
 - No resource/money to purchase foodOthers (specify)
3. a) Are there any significant changes in the people's choice of food over the last 5 years?
b) What influences this choice?
4. Has urbanization affected agricultural practices?
If yes please explain how?
5. What are the main health concerns in the community currently?
6. How does the department of agriculture collaborate with the health department to address these health issues?
- 7.) What do you think could encourage and support more community involvement around health issues?
b) What are the barriers to community involvement?
8. What do you think has been the greatest obstacle to optimum health?
9. Is there anything you would like to add?

Thank you for your participation

References

1. WHO (2014).
2. RE G (1992) Evaluating Diabetes Education: Are we measuring the most important outcomes? *Diabetes care* 15: 1423-1432.
3. Reid A (2015) Diabetes Health Needs Assessment for Solihull. 3-v.
4. Hiss RG (2001) Comprehensive Evaluation of community based diabetic patients. Effects of feedback to patients and thier physician: a randomized controlled trial. *Diabetes Care* 24: 690-694.
5. LM M (2007) An assessment of the level of knowledge about diabetes mellitus among diabetic patients in a primary healthcare setting. 49: 16.
6. Goyder EC (2000) Inequalities in access to diabetes care: evidence from a historical cohort study. *Qual Health Care* 9: 85-89.
7. Nielsen J (2017) Accessing diabetes care in rural Uganda: Economic and social resources. *Global public health journal for research, policy and practice* 12: 892-908.
8. Hjelm K (2011) Health-care seeking behaviour among persons with diabetes in Uganda: An interview study. *BMC International Health and Human Rights* 11: 11.
9. Gary TL (2013) Social Epidemiology of Diabetes and Associated Conditions. *Current diabetes reports* 13: 850-859.
10. CDC (2010).

Copyright: ©2021 Gatwiri Murithi, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.